

WHAT IS CLAIMED IS:

1. A single crystal pulling apparatus for a metal fluoride, comprising:

- 5 a chamber constituting a crystal growth furnace;
 - a crucible provided in the chamber and filling a molten solution of a single crystal manufacturing material;
 - a melting heater provided to surround the crucible;
 - a vertically movable single crystal pulling bar
- 10 including a seed crystal on a tip and coming in contact with the molten solution of the single crystal manufacturing material filled in the crucible;
 - a heat insulating wall provided in the chamber to surround at least a peripheral side portion of a single
 - 15 crystal pulling region in an upper part of the crucible;
 - a ceiling board for closing an opening portion of an upper end in an upper part of the heat insulating wall; and
 - a single crystal pulling chamber surrounded by the heat insulating wall and the ceiling board,
- 20 wherein the ceiling board is provided with at least an inserting hole for inserting the single crystal pulling bar, and
 - a coefficient of thermal conductivity in a direction of a thickness of the ceiling board is 1000 to 50000

W/m²· K.

2. The single crystal pulling apparatus for a metal fluoride according to claim 1, wherein a coefficient of thermal conductivity in a direction of a thickness of the heat insulating wall is 100 W/m²· K or less.
3. The single crystal pulling apparatus for a metal fluoride according to claim 1 or 2, wherein the ceiling board is a graphite plate.
4. The single crystal pulling apparatus for a metal fluoride according to any of claims 1 to 3, wherein the ceiling board is positioned in a higher place than an upper end of the crucible by 50 to 500% of a maximum inside diameter of the crucible.
5. The single crystal pulling apparatus for a metal fluoride according to any of claims 1 to 4, wherein a total opening area of apertures formed on the ceiling board is 5 to 60% of an opening area of an upper end in a circular enclosure of the heat insulating wall.
6. The single crystal pulling apparatus for a metal

fluoride according to any of claims 1 to 5, wherein the metal fluoride is calcium fluoride.

7. The single crystal pulling apparatus for a metal fluoride according to any of claims 1 to 6, wherein the crucible has a maximum inside diameter of 11 cm or more.